

## REMARKS

Claims 19-36 are now pending in the application. Claims 19-21 and 23-36 are amended herein. Claim 22 is cancelled. Claims 37-45 are added herein. Minor amendments have been made to the claims to simply overcome the objection to Claim 22 and to overcome the rejections of Claims 19-36 under 35 U.S.C. § 112. The amendments to the claims contained herein are not narrowing amendments. Support for the amendments to the claims can be found throughout the drawings and specification. As such, no new matter is added. The amendments to Claim 19 merely clarify subject matter that was already explicitly recited. As such, no new issues are raised. The Examiner is respectfully requested to reconsider and withdraw the rejections in view of the amendments and remarks contained herein.

## SPECIFICATION

The Abstract stands objected to because it is longer than 150 words. The Abstract is amended herein to contain less than 150 words. Reconsideration and withdrawal of this objection are respectfully requested.

## CLAIM OBJECTIONS

Claim 22 stands objected to as being of improper dependent form. Claim 22 is cancelled herein. Reconsideration and withdrawal of this objection are respectfully requested.

### **REJECTION UNDER 35 U.S.C. § 112**

Claims 19-36 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point and distinctly claim the subject matter which Applicants regard as the invention. This rejection is respectfully traversed.

The Examiner alleges that the specification does not disclose elements that are tuned by a voltage-controlled oscillator and thus rejects Claims 19, 21, 24, 25, 27, 28, 29, 31 and 32, which recite "a plurality of elements tuned by the voltage control oscillator". While Applicants disagree with the current rejections, Applicants have amended Claims 19, 21, 23, 24, 28, 29, 31 and 32 as suggested by the Examiner to expedite prosecution. Applicants reserve the right to pursue the claims as originally filed in one or more continuing applications. Applicants submit that Claims 25 and 27 do not recite elements that are tuned by a voltage-controlled oscillator.

Reconsideration and withdrawal of this rejection is respectfully requested.

### **REJECTION UNDER 35 U.S.C. § 103**

Claims 19, 20, 22 and 26 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Allott (U.S. Pat. No. 6,747,521) in view of Iadanza et al. (U.S. Pat. No. 2004/0263259). This rejection is respectfully traversed.

With respect to Claim 19, Allott and Iadanza do not at least show, teach or suggest switching a voltage-controlled oscillator (VCO) operating mode to a linear-high-gain mode to enable a first frequency tuning operation that includes targeting a linear frequency versus voltage (f/v) curve to vary frequency output of the voltage-controlled oscillator within a frequency locking range. In targeting the linear f/v curve the invention

of Claim 19 varies frequency output of the VCO to follow the f/v curve, thereby providing linear performance.

The Examiner admits that Allott does not disclose a f/v curve that is linear. Applicants submit that Allott does not disclose the use of a f/v curve.

The Examiner relies on Iadanza for the disclosure of using a linear portion of a f/v curve. Applicants submit that Iadanza does not use, target or follow a f/v curve during operation of a VCO. As best understood by Applicants, Iadanza discloses a VCO that has a corresponding non-linear f/v performance curve. Iadanza appears to disclose the adjusting of a control parameter value of the VCO such that the VCO is operated in a linear range of the non-linear curve. Iadanza does not adjust the control parameter to follow the non-linear f/v performance curve, but rather adjusts the control parameter to maintain operation of the VCO in a selected range of the non-linear f/v performance curve. In contrast, the invention of Claim 19 varies frequency to follow a linear curve.

The operation of Iadanza significantly narrows the operating range of frequencies. By operating in a linear portion of a non-linear curve, the range of frequencies that a PLL can lock onto is narrowed. By targeting a linear f/v curve, the method of Claim 19 provides a wide frequency locking range. This provides a PLL with increased bandwidth.

As an example, voltages of a phase lock loop (PLL) or more specifically output voltages of a gain-mode switcher may be varied to vary the output frequencies of a VCO, see paragraphs [0022], [0023], [0027] and [0033] of the present application. The input voltages and output frequencies of a VCO may be varied to provide a nonlinear relationship between the input voltages and the output frequencies. The method of

Claim 19 however varies the output frequencies to provide a linear relationship between an input voltage and an output frequency of a VCO. This improves phase noise performance and provides a stable PLL with a fast settling time.

It is a longstanding rule that to establish a *prima facie* case of obviousness of a claimed invention, all of the claim limitations must be taught or suggested by the prior art. *In re Royka*, 180 USPQ 143 (CCPA 1974), see MPEP §2143.03.

Therefore, Claim 19 is allowable for at least the above reasons. Claims 20-21 and 23-27 ultimately depend from Claim 19 and are allowable for at least similar reasons.

#### **ALLOWABLE SUBJECT MATTER**

The Examiner states that Claims 24, 25, 27 and 28-36 would be allowable if rewritten to overcome the rejections under 35 U.S.C. 112, 2<sup>nd</sup> paragraph, set forth in this Office Action and to include all of the limitations of the base claim and any intervening claims. Applicants have overcome the 35 U.S.C. 112 rejection with respect to Claims 24, 25, 27 and 28-36 and the 35 U.S.C. 103 rejection with respect to Claim 19. Claims 24, 25, 27 and 28-36 ultimately depend from Claim 19 and should now be in a condition for allowance. Applicants reserve the right to rewrite Claims 24, 25, 27 and 28-36 in independent form in the future if necessary.

CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action and the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

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By: *Michael D. Wiggins*  
Michael D. Wiggins  
Reg. No. 34,754

Jeffrey J. Chapp  
Reg. No 50,579

HARNESS, DICKEY & PIERCE, P.L.C.  
P.O. Box 828  
Bloomfield Hills, Michigan 48303  
(248) 641-1600

MDW/JJC/mp